

REMARKS

This Amendment is being submitted with the accompanying Request for Continued Examination (RCE). Claims 1-30 remain pending in this application. Claims 1, 6, 8, 10, 14-21, and 26 are independent. Claims 1, 6, 8, 10, 14-22, and 26-28 have been amended, and no claims have been added or canceled by this Amendment.

No new matter is involved with any claim amendment, as support may be found throughout the originally-filed disclosure.

Unpatentability Rejection over Kudoh et al. in View of Jeon et al.

Withdrawal of the rejection of claims 1-16, 19-20 under 35 U.S.C. §103(a) as allegedly being unpatentable over Kudoh et al (US 5,414,702) in view of Jeon et al. (US 5,701,300) is requested. The examiner has failed to make a *prima facie* case of unpatentability.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria offer useful insights. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations.¹ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.² The Supreme Court recently held that it is necessary, *inter alia*, for a court to look to interrelated teachings of multiple patents in order to determine whether there was an apparent reason to combine the known elements in the claimed. In this regard, the Court held "[t]o facilitate review, this analysis should be made explicit."³ "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."⁴

¹ See MPEP §2143.

² *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

³ *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. ____ (2007) (see p. 14).

⁴ See *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

Applicants traverse the rejections because Kudoh, analyzed individually or in combination with other cited prior art references, fails to disclose, teach or suggest all the features recited in the rejected claims.

Discussion of Applicants' Disclosure

By way of background, various aspects and embodiments of Applicants' disclosure are generally directed to a method, a system, a mobile station, a network element, and an apparatus in which a larger higher layer data unit (SDU) is segmented into smaller segments on the lower layer (RLC). Segmentation length information is used to indicate the length of the segments at lower layer protocol data unit (PDU). Specific values of segmentation length information are employed to indicate, when considered necessary, special information about the upper layer data unit (SDU), such as whether or not the upper layer data unit ends in the current data segment in the lower layer PDU or continues to the next lower layer PDU. This information may be used in a receiver to correctly assemble the segmented data.

Discussion of Kudoh et al.

According to the Abstract, Kudoh et al. ("Kudoh") is purportedly directed to a packet disassembler for use in a control unit of an asynchronous switching system, wherein the packet disassembler eliminates the need of an upper-level processor to have an excessive processing ability, includes a plurality of fixed-length buffers having a storage capacity corresponding to a multiple of the byte length of an information field of input packets having a predetermined fixed length and each of the fixed-length buffers has an identical length. Also included in the packet disassembler is manager which, when disassembling input packets having an identical connection identifier within their headers, or having a multiplexing identifier on the same connection is not completed, performs allocation control of associating the packets having the identical identifier with one of the plurality of fixed-length buffers having the identical identifier, and when the disassembling of the packets having the identical identifier is completed or when no disassembling of the packets having the identical identifier is carried out, performs allocation control of associating the associated packets with an empty one of the plurality of fixed-length buffers.

The applied art, Kudoh, analyzed individually or in combination with the other cited prior art, fails to disclose, teach or suggest the variously claimed data segmentation methods including (independent claims 1, 8 and 15), telecommunications system (independent claims 10, 14, and 16), mobile station (independent claims 17 and 18), network element (independent claims 19 and 20) and apparatus (independent claims 21 and 26), wherein larger data units of a higher layer are segmented into smaller protocol data units of a lower layer so that *each lower layer protocol data unit includes two or more data segments each containing data from a different one of the upper layer data units*; and wherein the lower layer protocol data units *contain two or more data segments, with segmentation length information* which otherwise indicates length of the data segments; and wherein predetermined values of the segmentation length information are used to indicate *special information about the higher level protocol data units instead of the length of the segments*.

Applicants invite the Examiner's attention to the fact that all of the pending claims now recite that a lower layer PDU contains two or more data segments of higher layer data units, and further that each of the claims relates to lower layer protocol data units which each contain two or more data segments from two or more different higher layer data units, with special information about the higher level protocol data being indicated by predetermined values segmentation length information which otherwise would indicate length of the data segments.

Applicants maintain that Kudoh fails to teach or suggest this feature because in Kudoh, the payload information from the frame shown at the top of Figure 3 is segmented into lower layer PDUs by a two-step procedure. First, the frame encapsulated into a convergence (cs) sublayer PDU, which included the header CSH and the trailer CSH indicating the start and stop of the higher layer frame. The CS-PDU is further subdivided into segmentation and reassembly (SAR) sublayer PDUs which are provided with a header SARH and a trailer SART. Each SAR-PDU contains information from only one CS PDU or from only one higher layer frame. Each SAR-PDU is inserted to one ATM cell.

As recognized previously by the Examiner, a single layer protocol data unit cannot contain two or more data segments which contain data from different layer data units. Thus, Kudoh fails to teach or suggest a lower layer PDU which contains two or more data segments of the higher layer data units.

Although the Examiner appears to continue to assert that the combined information of LI and ST fields in the SAR-PDU corresponds to the segmentation length information, which would indicate length of the data segments, the length information LI indicates the length of SAR-PDU without padding; the purpose of that information being to indicate the effective length of the ATM cell in the ATM layer. Thus, contrary to the assertions of the Office Action, the length information LI merely indicates the effective length of the data field in the SAR-PDU. LI does not give any information about the higher layer frames.

Further, the reference symbol ST denotes a segment type by which each of the cells transmitted after the division of the CS sub-layer protocol data unit CS-PDU into cells is to be positioned, i.e., whether the cell starts (BOM), continues (MID) or ends (EOM) a higher layer message (see, col. 3, lines 51-58; column 6, lines 15-26).

As admitted in the Final Office Action, Kudoh fails to teach or suggest indicating with predetermined values of segmentation length information, special information about the higher level protocol data units instead of the length of the segments at least in the lower layer protocol data units containing two or more data segments, and the step of assembling the segmented higher level data unit at the receiving end by means of the segmentation length information.

Discussion of Jeon et al.

The Examiner relies upon Jeon et al. ("Jeon") to allegedly remedy the above-identified deficiencies of Kudoh, and asserts that the modified teachings of Kudoh (in combination with Jeon) would remedy this feature.

Nevertheless, Jeon merely discloses a connectionless server for an ATM network, see, col. 1, lines 54-67 and col. 2, lines 1-16, which teach a similar arrangement as that of Kudoh for segmenting CPCS (Common Part Convergence Sublayer) PDUs into segmentation and reassembly (SAR) sublayer PDUs. As can be readily seen from Fig. 3 of Jeon, each SAR-PDU contains information from only one CS PDU or from only one higher layer frame. Each SAR-PDU is inserted to one ATM cell. Jeon also teaches that ST (Segment Type) information is inserted into each SAR-PDU to indicate whether the cell starts, continues or ends a higher layer message.

As a result, Jeon fails to remedy the deficiencies of Kudoh, and their combined teachings fail to provide the claimed invention wherein lower layer protocol data units each contain two or more data segments from two or more different higher layer data units, with special information about the higher level protocol data being indicated by predetermined values segmentation length information which otherwise would indicate length of the data segments. Therefore, Kudoh in view of Jeon would not have resulted in the subject matter of claims 1-16 and 19-20.

Specific Deficiencies of the Applied Art

Kudoh, analyzed individually or in combination with Jeon, fails to teach or suggest the claimed invention at least because both cited prior art references use a special-purpose field in each SAR-PDU to indicate a higher whether a higher layer message starts, ends or continues.

Specifically, the applied art, either alone or in combination, does not disclose, teach or suggest a data segmentation method in a telecommunications system that includes, *inter alia*, "segmenting larger data units of a higher layer into smaller protocol data units of a lower layer so that at least one of the lower layer protocol data unit includes ***two or more data segments each from two or more different higher layer data units***; indicating with predetermined values of segmentation length information, ***special information about the higher layer data units, instead of the length of the segments that would be indicated by other values of the segmentation information, at least in each lower layer protocol data that contains two or more data segments from two or more different higher layer data units...***", as recited in independent claim 1, as amended (*emphasis* added).

Further, the applied art, either alone or in combination, does not disclose, teach or suggest a data segmentation method in a telecommunication system that includes, *inter alia*, "segmenting larger data units of a higher layer into smaller protocol data units of a lower layer ***so that at least one lower layer protocol data unit includes two or more data segments from two or more a different the upper layer data units***; indicating with predetermined values of the segmentation length information ***special information about the higher level protocol data unit instead of the length of the segments that would be indicated in by other values of the segmentation length information***, in each lower layer protocol data that contains two or more data segments from two or more different higher layer data units so that the segmented higher level data unit can be

assembled at a receiving end by means of the predetermined values of the segmentation length information...”, as recited in independent claim 6, as amended (*emphasis added*).

Still further, the applied art, either alone or in combination, does not disclose, teach or suggest a data segmentation method in a telecommunications system which includes, *inter alia*, "segmenting larger data units of a higher layer into smaller protocol data units of a lower layer ***so that at least one lower layer protocol data unit includes two or more data segments from two or more different higher layer units; indicating with predetermined values of the segmentation length information special information about the higher layer data unit, instead of the length of the segments that would be indicated by other values of the segmentation length information***, in each lower layer protocol data that contains two or more data segments from two or more different higher layer data units so that the segmented higher level data unit can be assembled at a receiving end by means of the predetermined values of the segmentation length information; providing each lower level protocol data unit with two or more payload units of a predetermined length, the payload units being a smallest unit in a retransmission protocol employed...”, as recited in independent claim 8, as amended (*emphasis added*).

In addition, the applied art, either alone or in combination, does not disclose, teach or suggest a telecommunications system that includes, *inter alia*, "...means for segmenting the upper layer data units for insertion into smaller protocol data units of a lower layer ***so that at least one lower layer protocol data unit includes two or more data segments, from two or more different upper layer data units***; means for providing a predetermined value in segmentation length information to a receiver, ***the predetermined value including special information about the upper layer data units instead of the length of the data segments that would be indicated by other values of the segmentation length information at least in each lower layer protocol data unit that contains two or more data segments from two or more different upper layer data units*** so as to enable assembling the segmented upper layer data units from received lower layer protocol data units at a receiver by means of the predetermined values of the segmentation length information in the lower layer protocol data units", as recited in independent claim 10, as amended (*emphasis added*).

Furthermore, the applied art, either alone or in combination, does not disclose, teach or suggest a telecommunications system that includes, *inter alia*, "...means for segmenting the

upper layer data units for insertion into smaller protocol data units of a lower layer *so that at least one lower layer protocol data unit includes two or more data segments from two or more different upper layer data units*; means for providing a predetermined value in the segmentation length information to a receiver, *the predetermined value including special information about the upper layer data units, instead of the length of the data segments that would be indicated by other values of the segmentation length information, in each lower layer protocol data unit that contains two or more data segments from two or more different upper layer data units* so as to enable assembling of the segmented upper layer data units from received lower layer protocol data units at a receiver by means of the special values of the segmentation length information in the lower layer protocol data units...”, as recited in independent claim 14, as amended (*emphasis added*).

Further, the applied art, either alone or in combination, does not disclose, teach or suggest a data segmentation method in a telecommunication system that includes, *inter alia*, "segmenting larger first data units of a higher protocol layer into data segments that can be accommodated by smaller second data units of a lower protocol layer, *at least one second data unit comprising two or more data segments from two or more different first data units; indicating with predetermined values of segmentation length information special information about the first data units, instead of the length of the data segments that would be indicated by other values of said segmentation length information...*", as recited in independent claim 15, as amended (*emphasis added*).

Also, the applied art, either alone or in combination, does not disclose, teach or suggest a telecommunications system that includes, *inter alia*, "...means for segmenting said first data units into data segments that can be accommodated by the second data units for insertion into the second data units, *at least one second data unit comprising two or more data segments, from two or more different first data units*; and means for giving a predetermined value in segmentation length information *in order to provide a receiver with special information about the first data units, in place of the length of the data segments that would be indicated by other values of said segmentation length information, in each second data unit that contains data from two or more different first layer data units* so as to enable assembling the segmented first data unit from received second data units at a receiver...”, as recited in independent claim 16, as amended (*emphasis added*).

In addition, the applied art, either alone or in combination, does not disclose, teach or suggest a network element that includes, *inter alia*, "a processor...configured to...segment said first data units into data segments that can be accommodated by the second data units for insertion into the second data units, ***at least one second data unit including two or more data segments from two or more different first data units***...[said processor being configured to] set a predetermined value for ***segmentation length information in order to provide a receiver with special information about the first data units at least in each lower layer protocol data unit containing two or more data segments carrying data from two or more different first data units, in place of the length the data segments that would be indicated by other values of said segmentation length information*** so as to enable a receiver to assemble the segmented first data unit from received second data units...", as recited in independent claim 19, as amended (*emphasis added*).

Finally, the applied art, either alone or in combination, does not disclose, teach or suggest a network element that includes, *inter alia*, "a processor...configured to: ...segment said first data units into data segments that can be accommodated by the second data units for insertion into the second data units, ***at least one second data unit including two or more data segments from two or more different first data units***; set a predetermined value for segmentation length information ***in order to provide a receiver with special information about the first data units, instead of other values of said segmentation length information that would indicate the length of the data segments in each second data unit that contains data from two or more different first layer data units*** so as to enable a receiver to assemble the segmented first data unit from received second data units...", as recited in independent claim 20, as amended (*emphasis added*).

Accordingly, since the applied art does not teach or suggest all the claimed limitations, reconsideration and allowance of independent claims 1, 6, 8, 10, 14-16, and 19-20 are respectfully requested. In addition, dependent claims 2-5, 7, 9, and 11-13 variously and ultimately depend from these allowable independent claims, and are submitted as being allowable at least on that basis, without further recourse to the patentable features recited therein.

The Applied Art “Teaches Away” from the Claimed Invention

Even if the applied art, either alone or in combination, taught or suggested all the limitations recited in the independent claims (which it does **not**), a person with skill in the art would not have a rational reason to combine Kudoh with Jeon in the manner suggested by the Examiner, because at least Kudoh teaches away from Applicants' invention as variously recited in the independent claims discussed above. ***Only through the use of improper hindsight analysis would these references be looked upon to derive Applicant's novel and non-obvious invention, as claimed in the various independent claims.***

It is impermissible within the framework of 35 U.S.C. §103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.⁵ Further in this regard, As the Court of Customs and Patent Appeals, predecessor to the Federal Circuit, has held:

All relevant teachings of cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the claimed invention.⁶

The rejections in the Official Action amount, in substance, to nothing more than hindsight reconstruction of Applicants' invention by relying on isolated teachings of the applied art, without considering the overall context within which those teachings are presented. Without benefit of Applicants' disclosure, a person having ordinary skill in the art would not know what portions of [Kudoh and Jeon] to consider, and what portions to disregard as irrelevant or misleading.⁷

Kudoh actually teaches away from the claimed invention by teaching use of a special-purpose field in each SAR-PDU to indicate whether a higher layer message starts, ends or continues. Accordingly, Kudoh teaches away from the claimed invention wherein, in stark

⁵ *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 USPQ 416 (Fed. Cir. 1986).

⁶ *In re Mercier*, 185 USPQ 774, 778 (CCPA 1975).

⁷ *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965).

contrast to Kudoh, the segmentation length information of Applicants' disclosed and claimed invention is used in the lower layer protocol data units containing two or more data segments to indicate information about higher level protocol data units, instead of the length of the segments or the effective length of the data field, in order to avoid such extra fields and the resulting signaling overhead (see page 3, lines 4 to 14 in the present application).

Therefore, Applicants submit that Kudoh would lead a person skilled in the art away from the claimed invention by teaching the use of a special-purpose field in each SAR-PDU to indicate whether a higher layer message starts, ends or continues.

Accordingly, claims 1-16 and 19-20 are submitted as not being obvious over Kudoh in view of Jeon, and allowance is requested.

Unpatentability Rejection over Kudoh and Jeon in View of Duault et al.

Withdrawal of the rejection of claims 17-18 under 35 U.S.C. §103(a) as allegedly being unpatentable over Kudoh and Jeon in view of Duault et al. (US 5930265) is requested. The requirements for unpatentability have been discussed above, along with the deficiencies of Kudoh and Jeon.

Discussion of Duault et al.

Similarly, Duault et al. ("Duault") fails to remedy the deficiencies of Kudoh and Jeon discussed above because ***Duault merely teaches a conventional data processing system and method of communicating using mobile voice data with ATM network.***

As a result, Duault fails to remedy the deficiencies of Kudoh and Jeon and their combined teachings fail to provide the claimed invention wherein lower layer protocol data units each contain two or more data segments from two or more different higher layer data units, with special information about the higher level protocol data being indicated by predetermined values segmentation length information which otherwise would indicate length of the data segments.

In addition, a person having skill in the art would not be motivated to combine Kudoh with Jeon because Kudoh teaches away from the invention recited in the independent claims, as discussed above.

Therefore, Kudoh in view of Jeon and Duault would not have resulted in the subject matter of claims 17-18, and allowance is requested.

Unpatentability Rejection over Kudoh and Jeon in View of Nakakita et al.

Withdrawal of the rejection of claims 21-30 under 35 U.S.C. §103(a) as allegedly being unpatentable over Kudoh and Jeon in view of Nakakita et al. (US 6061820) is requested. The requirements for unpatentability have been discussed above, along with the deficiencies of Kudoh and Jeon.

Discussion of Nakakita et al.

Nakakita et al. ("Nakakita") fails to remedy the deficiencies of Kudoh and Jeon because *Nakakita merely teaches conventional cell assembling apparatuses*. As a result, Nakakita fails to remedy the deficiencies of Kudoh and Jeon, and their combined teachings fail to provide the claimed invention wherein lower layer protocol data units each contain two or more data segments from two or more different higher layer data units, with special information about the higher level protocol data being indicated by predetermined values segmentation length information which otherwise would indicate length of the data segments.

Therefore, Kudoh in view of Jeon and Nakakita would not have resulted in the subject matter of claims 21-30, and allowance is requested.

Conclusion

All rejections having been addressed, Applicant submits that each of pending claims 1-30 in the present application is in immediate condition for allowance. An early indication of the same would be appreciated.

In the event the Examiner believes that an interview would be helpful in resolving any outstanding issues in this case, the Undersigned Attorney is available at the telephone number indicated below.

For any fees that are due, including fees for the RCE and/or extensions of time, please charge Deposit Account Number 03-3975 from which the Undersigned Attorney is authorized to draw. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

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Respectfully submitted,

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